

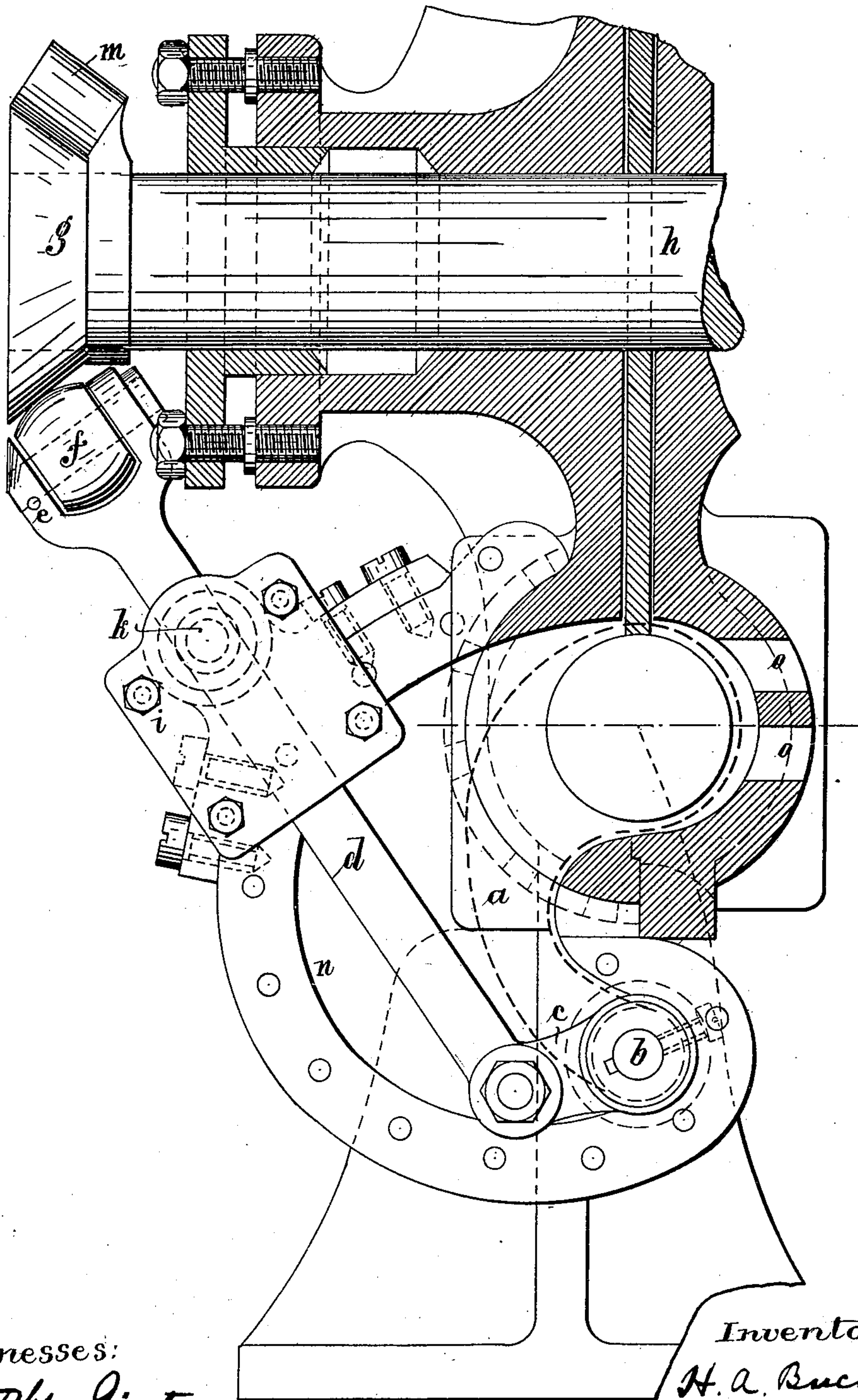
No. 679,106.

Patented July 23, 1901.

H. A. BUCK.
ROTARY ENGINE.

(Application filed Dec. 24, 1900.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

HENRY ALONZO BUCK, OF WEST STAFFORD, CONNECTICUT.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 679,106, dated July 23, 1901.

Application filed December 24, 1900. Serial No. 41,000. (No model.)

To all whom it may concern:

Be it known that I, HENRY ALONZO BUCK, engineer, a citizen of the United States of America, and a resident of West Stafford, Connecticut, at present residing at Fruchtstrasse 37, Berlin, Germany, have invented new and useful Improvements in or Relating to Rotary Engines or Motors, of which the following is a specification.

My invention relates to improvements in rotary engines or motors in which the piston revolves in an annular channel and in which the movement of the piston by the motive fluid is rendered possible by a slide adapted to pass across the annular channel and so arranged in the annular channel as to leave the latter when the piston approaches it and to return to the channel immediately after the piston has passed. The steam or motive fluid is admitted by a supply device of any suitable kind between the slide and the piston, steam admission being arranged so that the engine can work expansively. In the case of such engines, and especially in the case of those which are driven at a high speed, it is absolutely necessary to render the movement of the slide as rapid as possible. The movement of the slide must of course be derived from the driven shaft, and it is of importance to have the fewest number of parts possible to produce the required movement of the slide. In order to obtain this result, a cam-disk is in accordance with my invention provided on the principal shaft of the machine, the side of which is conically inclined toward the cylinder. On the disk travels, by means, if required, of a roller, the bar which causes the movement of the slide, the said bar having a roller at its end, if desired, and extending toward the slide from the disk in an inclined direction, and by these means both the amount and number of parts for operating the slide can be considerably reduced.

In the accompanying drawing I have shown a steam-engine with a rotating piston provided with a distribution device of the kind above referred to.

A cylinder-slide *a* (shown in dotted lines) is keyed on a shaft *b*, which passes out of the distribution-box through properly-packed openings. On this shaft is also keyed, outside the distribution-chamber, a short crank-

arm *c*, to which is articulated a rod *d*. The upper part *e* of the said rod moves, with its roller *f*, on a cam-disk *g*, keyed on the motor-shaft *h*. The surface of the disk forms the side of a cone directed toward the cylinder. Since the crank-arm *c* moves in an arc about the center of its shaft, it follows that the rod *d* and end *e* must be either articulated to each other, or the guide device *i* of the rod may be rotatorily arranged at *k* on the machine-frame.

The device described above is only intended to effect the opening of the slide. Whenever the projection *m* of the cam-disk *g* strikes against the roller, the slide *a* is moved out of the cylinder-channel, thereby allowing the piston to pass. The cam-disk is so arranged that the slide is normally closed or across the path of the piston. The cam-disk, however, does not itself effect such closing, since this can be effected by other devices—such as, for instance, a spring or the like. The slide is arranged in a chamber *n*, and the admission of motive fluid to the said chamber is effected through ports or conduits *o*, which are governed by a distribution-slide in such a manner that the engine can work with expansion and the reversing of the engine is rendered possible.

Having now particularly pointed out my invention and the manner in which it may be performed, I declare that what I claim is—

1. In a rotary engine, the combination with a cylinder, and a shaft and piston mounted to rotate therein; of a slide adapted to swing into the path of said piston, a cone-shaped cam having its surface inclined toward the cylinder carried by said shaft, and means operated by said cam for controlling said slide, substantially as described.

2. In a rotary engine, the combination with a cylinder, and a shaft and piston mounted to rotate therein; of a rock-shaft mounted in the cylinder-casing, a slide mounted thereon, adapted to swing into the path of said piston, a cone-shaped cam having its surface inclined toward the cylinder mounted on the said shaft, and means operated by said cam for oscillating said rock-shaft, substantially as described.

3. A rotating engine having a cam *g* the surface of which is conically inclined toward the cylinder in combination with a rod *d* working

on the cam and articulated on the crank-shaft
c of the slide substantially as described.

4. A rotating engine having a cam *g* the sur-
face of which is conically inclined toward the
5 cylinder and an inclined rod *d* acted upon by
the cam and guided in a block *i* articulated
at *k* substantially as described.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

HENRY ALONZO BUCK.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.